



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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TO: Internal File

FROM:  Priscilla Burton, Environmental Scientist III/Soils, Team Lead

RE: Star Point Waste Fuel Mine Permit Application, Sunnyside Cogeneration Associates Inc., Star Point Waste Fuel Mine, PRO 007/042

SUMMARY:

Construction of the refuse pile began in 1970, with rejects from the Star Point Mine wet processing of Run of Mine (R.O.M.) coal from the Wattis, Third and Hiawatha seams. Use of the refuse disposal site continued until mine closure in 1997 (Exhibit 624.210a, Reserve Assessment of Star Point Coal Refuse Site). Sunnyside Cogeneration Associates is applying for this permit to mine the refuse remaining after the closure of the Star Point Mine.

The quality of the refuse changed over time as improvements were made to the processing of the R.O.M. coal. The most deeply buried refuse has greater btu/lb and is more fine than the material above. Indications are that 30% of the refuse is coal fines having the higher fuel rating. The remainder is coarser fragments that will be crushed and blended with the fines.

The application presents laboratory information from an uncertain date, an uncertain laboratory, and uncertain locations to describe the chemical nature of the waste. The application does not recognize that the information presented clearly indicates that the refuse is acid forming even when based only upon pyritic sulfur content.

The application inappropriately suggests that refuse discarded for use as fuel will become excess spoil. Definitions of spoil and excess spoil do not include discarded refuse.

The application lacks the following required information:

- Consistent statements of permit and disturbed area.
- Names of individuals responsible for the collection and analysis of the technical information supplied in Tables 624.100b & c.
- A description and location of equipment to be used for crushing, sorting, sieving, blending operations on site.

TECHNICAL MEMO

- An air quality permit from the State of Utah Division of Environmental Quality, Bureau of Air Quality.
- Authorization from the Office of Surface Mining for an exemption from payment of AML fees.
- Measures that have been taken to ensure the stability of the subsoil stockpile as well as the date when the material was stockpiled.
- The exact acreage and yardage of substitute topsoil and cover depth to be placed in both the Final Reclamation Scenario and the Bonding Scenario Reclamation.
- Original contours for the site on reclamation maps, to the extent that they are known.

The reclamation plan for the site should indicate that the entire regraded site will be gouged, including the slopes (see Section 553.100) and that nitrogen fertilizer will be omitted, but that phosphorus fertilization will be included. The reclamation plan should indicate type and rate of phosphorus fertilization. The application should include some way of monitoring the refuse for acid/toxic properties just prior to final reclamation, so that toxic waste or waste with the potential for acid-formation can be buried within the fill.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

SCA acquired the coal refuse from Plateau Mining Corp on January 31, 2002. Documentation of the applicant's right of entry are contained in Exhibits 114.100a, 114.100b, and 114.200a.

The permit area is located in Township 15 South Range 8 East, SLB&M Sections 10 & 15.

Findings:

The information provided meets the Right of Entry requirements of the Regulations.

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

Subsoil to be used as substitute topsoil was removed from the refuse pile site in 1982 under the ownership of Cypress Plateau Mining Corporation (CPMC). The applicant uses the term topsoil rather than subsoil throughout the mining and reclamation plan, but to be accurate the term subsoil should be used.

The location of the existing topsoil (subsoil) stockpile pile is shown on Map 521.100d, not on Maps 222.100a and 222.100b as stated in Section 234 of the application.

Findings:

The information provided does not meet the Division's requirements for Permit Application Format and Contents. Prior to approval the Permittee will provide the following in accordance with:

R645-301-121.100, The application should correctly state in Section 234 that the location of the existing topsoil (subsoil) stockpile pile is shown on Map 521.100d, not on Maps 222.100a and 222.100b.

R645-301-121.200, The application should correct all references to the stockpiled topsoil with stockpiled subsoil and/or substitute topsoil.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

Psomas & Associates of Salt Lake City, Utah wrote the Star Point Waste Fuel Mining and Reclamation Plan under the direction of Scott Carlson, P.E.

The reserve exploration program (Exhibit 624.200a) was conducted by Miltech Energy Services of Lingonier, Pennsylvania in 2001 under the direction of Brian F. Miller, P.E.

Laboratory analysis of refuse samples for % moisture,,% ash, Btu/lb, and %sulfur was conducted by Commercial Testing & Engineering Co. of Huntington, Utah.

TECHNICAL MEMO

Individuals responsible for collection and laboratory analysis of the samples with Identification Numbers 87-R-1 through 87-R-9 was not detailed in the application. The samples were not located on a map.

Findings:

The information provided does not meet the requirements of the Regulations for Reporting of Technical Data. Prior to approval the Permittee will provide the following in accordance with:

R645-301-131, The individuals responsible for the collection and analysis of the technical information supplied in Tables 624.100b & c must be added to the narrative in Section 624.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The public notice indicates the permit area is 188 acres, but other figures, such as 168 acres (Section 724.200) and 153.32 acres (Map 111.100a) are used throughout the application. Map 111.100a breaks out the 153.32 acres as follows:

- 40 acres of leased BLM land,
- 6.28 acres of land owned by Plateau Mining Corporation, and
- 107.04 acres of land owned by SCA are in the permit area.

According to the Star Point Mine reduction in permit area application (AM02D-1), Sunnyside Cogeneration Associates purchased 171.20 acres (the refuse pile and soil borrow area). The soil borrow area is not contemplated for this permit application. Only the refuse pile is within the permit area.

The disturbed area is identified in several maps, including Map 731.720a, Refuse Pile Surface Water and Sedimentation Control Facilities. The disturbed area includes 3.6 acres that have been reclaimed by Plateau Mining Corp. in 2001 (Section 117.300).

Findings:

The information provided is not adequate for the purposes of the Environmental Resource Information, Permit Area requirements of the Regulations. Prior to approval the Permittee will provide the following in accordance with:

R645-301-521, Permit Area and disturbed area should be stated in the narrative of Section 100 and consistently stated throughout the permit application.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

An historic/archaeological report written by Kevin C. O'Dell of Sagebrush Archaeological Consultants, L.L.C. in 1998 is included in Exhibit 411.140a. The report indicates in its introduction that there were four historic sites located in the Wattis area during a 1980 survey by Archaeological-Environmental Research Corporation (AERC). A map showing the locations of the eligible sites was not included with the 1998 report or with an earlier report attached to the application. The statement made in Section 411.140 that there are no historic resources eligible for listing on the National Register of Historic Places appears to be in error, based on the facts presented by the 1998 Sagebrush Archaeological Consultants.

A report of historic/archaeological investigation from 1980/1981 was included in the Exhibit 411.140a, but did not include a title page with information on who conducted the investigation. A summary of the history of Wattis was included in the Exhibit 411.140a, also without crediting an author.

Findings:

The information provided does not meet the Historic and Archaeological requirements of the Regulations. Prior to approval the Permittee will provide the following in accordance with:

R645-301-121.100, The application must indicate in Section 411.140 that there are four historic resources eligible for listing on the National Register of Historic Places adjacent to the permit area.

R645-301-132, Information included in Exhibit 411.140a must include documentation of the persons or who conducted or authored the work.

TECHNICAL MEMO

R645-301-411.141.1, The location of historical resources eligible for listing on the National Register of Historic Places adjacent to the permit area must be included on a map. Four such historical resources were mentioned in the Introduction to the 1998 Sagebrush Archaeological Consultants, L.L.C. study.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

The Order III Soil Survey of Carbon County conducted by the Soil Conservation Service in 1988 included the permit area proposed for the Star Point Waste Fuel Mine.

The location of the refuse pile was surveyed prior to disturbance in 1981 (see Exhibit 222).

Table 222.100a Permit Area Soil Types itemizes six soil types for the 153 acre permit area. At an Order III level, the predominant soil types are Doney, Hernandez, and Strych. These map units are described in Exhibit 222.300b. Map 222.100a SCA/Star Point Waste Fuel Soils Map shows soil and refuse sample locations. Map 222.100b SCA/Star Point Waste Fuel Soils Disturbed Area Map shows the extent of the disturbed area. Within the disturbed area boundaries, the pre-existing soils would probably have been Gerst, Strych or Hernandez.

Topsoil and subsoil was salvaged from beneath the refuse pile in 1982. The material was segregated in two piles. The subsoil pile was transferred to SCA for the proposed Star Point Waste Fuel Mine and the topsoil pile remained with Plateau Mining Corp (C/007/006). The analysis of both materials is found in Table 243 Refuse Expansion Area Soil Analysis. The material was tested for and meets the suitability requirements for use as substitute topsoil.

Although the plan does not relate this information, the Division understands that the stockpiled subsoil is represented by the C horizon and the upper horizons (A & B) were separately salvaged into a topsoil stockpile (see Star Point Mine MRP C/007/006).

Findings:

The information provided is not adequate for the purposes of the Environmental Soil Resource requirements of the Regulations. Prior to approval the Permittee will provide the following in accordance with:

R645-301-231.100, The application should relate that the stockpiled subsoil is comprised of the C horizon soils only and that the quality of the material as shown in Table 243 is for both upper (A & B) horizons and lower (C) horizons. The upper A & B horizons were separately salvaged into a topsoil stockpile.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.22; R645-301-411.

Analysis:

Pre-Mining land use is described in Section 411.100 as wildlife and grazing, administered by the BLM as part of the Wattis Grazing Allotment (Section 411.120). The wildlife and grazing land use is better ascribed to the adjoining lands, as the historic use of the land within the permit area was for the town of Wattis (Section 411.200).

The land is zoned MG-1 Mining and Grazing (Section 411.130). Section 411.130 itemizes the use of lands adjacent to the permit area, including recent oil and gas development. County Road 290 adjacent to the permit area is used for access to Gentry Mountain for recreation and maintenance of county facilities and as a route to the oil and gas developments adjacent to the permit area.

Findings:

Information provided in the application meets the minimum Land Use Resource Information requirements of the regulations.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

The Star Point Waste Fuel Surface Geology Map 624.100a locates the proposed mine site on pediments formed from the Mancos Shale and Quaternary deposits. Underneath the refuse, the Mancos shale member is hundreds of feet thick. The Ferron Sandstone member lies approximately 1200 feet below the shale unit and is a source for natural gas and ground water. The exceptionally low conductivities of the shale will prevent downward migration water from the refuse site to the first aquifer below the refuse piles.

TECHNICAL MEMO

Surface drainage from the site flows into sediment ponds that discharge into ephemeral tributaries of Serviceberry Creek as illustrated on Map 722.200. Serviceberry then conveys the water to Miller Creek, which is a tributary of the Price River (Section 532 and 533).

Ground water rights within or adjacent to the Star Point Waste Fuel Mine operations are listed in Table 724.100a. All ground water rights were for underground use in the Star Point Mine. Surface water rights are listed in Table 724.200b.

Areas of irrigated land is designated on Figure 724.200a. All of this irrigated land is downstream of the proposed Star Point Waste Fuel Mine. Operation of the proposed Star Point Waste Fuel Mine will not affect the quality of downstream waters. All discharges from the proposed permit area to major stream channels are regulated by a UPDES permit from the Utah Division of Water Resources.

Applicability of Statutory Exclusions

Findings:

The Division finds that the proposed Star Point Waste Fuel Mine is not located in an alluvial valley floor.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

The Natural Resource Conservation Service (NRCS) was contacted for their opinion on the farmland status of the permit area (Exhibit 221). The NRCS concluded that there was no prime farmland due to arid soils and lack of irrigation water to the site.

The Division notes that there are 77 acres of Hernandez soils (Map Unit 53) listed in Table 222.100a for the permit area. This map unit is described in the 1988 Soil Conservation Service Carbon County Survey as prime farmland soils if irrigated.

Findings:

The Division concurs with the Natural Resource Information Service that there are no prime farmlands within the permit area.

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

The mine life is estimated to be twenty years. Volume of waste to be mined is estimated at 4,710,000 cu yds. Approximately 1,430,000 cu yds will be removed from the site every five years for the first fifteen years. The final five years in the life of the mine will see 410,000 cu yds moved from the site (see Map 521.100e). Table 523.100a relates the tonnage of coal mine waste to be moved as 200,000 tons/year which equates to 833 tons/day, 104 tons/hour, 15 truck trips/day or two trucks an hour.

Three refuse piles (A, B, and C) are illustrated on Maps 521.100e and 731.120b. Map 521.121c, showing the sequence of mining is referred to in Section 521, but could not be found.

The consultant's report found in Exhibit 624.200a recommended sorting, crushing and blending of the coarse with the fine waste. If the Permittee intends to conduct those operations at the site, the application should describe the type and method of procedures to be used and the major equipment to be used for all aspects of the operations.

Findings:

The information provided is not adequate for the purposes of the Operation Plan Mining Operations and Facilities requirements of the Regulations. Prior to approval the Permittee will provide the following in accordance with:

R645-301-121.200, Map 521.121c, the sequence of mining map, cited in Section 521, could not be found.

R645-301-523, If the Permittee intends to conduct sieving, crushing, sorting, and blending operations at the site, the application should provide a description and location of the type and method of procedures to be used and the major equipment to be used for all aspects of those operations.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

TECHNICAL MEMO

Analysis:

The application indicates that fugitive dust will be controlled with applications of water and/or calcium chloride or potassium chloride or other biodegradable wetting agents. Section 526.400 indicates that the air quality permit could be found in Exhibit 421a. This exhibit could not be found.

Findings:

The information provided is not adequate for the purposes of the Air Pollution Control Plan requirements of the Regulations. Prior to approval the Permittee will provide the following in accordance with:

R645-301-244 and -420, The application must include an air quality permit from the State of Utah Division of Environmental Quality, Bureau of Air Quality.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

An exploration program in 2001 by Miltech Energy Services of Lingonier, Pennsylvania (Exhibit 624.200a), provides information on the quality, size, volume and density of the raw material. The report indicates that there are 4.7 million cubic yards of refuse, with an average density of 105 lbs/cu ft (1.42 tons/cu yd). At 12% moisture, the site could yield 7.3 million tons of coal refuse. Average quality of the raw material increases with depth to 8,000 – 9,000 btu/lb. Particles with the greatest heat content are located near the bottom of the pile and represent 30% of the refuse pile. Screening of the large fragments from the pile will improve product quality.

Findings:

The information provided is not adequate for the purposes of the Coal Recovery requirements of the Regulations. Prior to approval the Permittee will provide the following in accordance with:

R645-301-121.200, Two pits are labeled BH-1 on Figure 1-1 of Appendix 624.200a and Drawing No. 01-372-1, and Map 222.100a. Two drill holes are labeled DH-3 on Map 222.100a.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Removal and Storage

Subsoil to be used as substitute topsoil was removed from the refuse pile site in 1982 under the ownership of Cypress Plateau Mining Corporation (CPMC). The applicant uses the term topsoil rather than subsoil throughout the mining and reclamation plan, but to be accurate the term subsoil should be used.

The location of subsoil pile is shown on Map 521.100d, SCA/Star Point Waste Fuel Refuse Pile Operation Plan Overview, and on Map 111.100a SCA/Star Point Waste Fuel Refuse Permit Boundary Survey. The volume of substitute topsoil has been surveyed at 192,000 cu yds by CPMC. SCA estimates that 250,000 cu yds will be available during reclamation due to a swelling of the material. (The compaction factor of 0.3 was used based on published research (page 200-9).)

Section 234 describes topsoil storage. The topsoil is stockpiled with 2h:1v slopes and is vegetated. The application should indicate which mix was seeded on the stockpile and in what year the stockpile was formed.

Findings:

The information provided is not adequate for the purposes of the Operations Topsoil Subsoil requirements of the Regulations.

R645-301-231.400, The application should describe measures that have been taken to ensure the stability of the subsoil stockpile as well as the date when the material was stockpiled.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

TECHNICAL MEMO

Analysis:

Refuse Piles

The refuse pile that has been in existence at the Star Point Mine will be utilized for fuel at the Sunnyside Refuse Cogeneration Plant. If coal mine waste fires erupt during the operation, they will be extinguished by covering or excavating the burning material. According to Section 528.323, clean spoil or other imported soil may be used for this purpose. The applicant should not plan on using salvaged, stockpiled substitute topsoil for this purpose. A source of for the imported soil should be stated in the plan.

The application states in Section 528.300-321 that excess spoil (or undesirable refuse) will be routinely compacted and covered to prevent combustion and wind-borne transport. The Division requests clarification of the plan to routinely cover the undesirable refuse.

Section 528.300-321 states that the Excess Spoil Disposal Area is shown on Map 528.300a. Map 528.300a could not be found. The proposed disposal area is shown on Map 521.100f as indicated in Section 528.322. This map shows the proposed undesirable refuse disposal area covering 5.5 acres. The material will be formed into a wedge against the existing topography. The wedge will have a maximum 4h:1v slope. The sloping sides of the wedge will face north, east and southeast. The waste will be packed forty feet deep at the center of the wedge and at a maximum of 55 feet at the highest point of the wedge.

The plan indicates that the undesirable refuse disposal site will be covered with four feet of soil from the subsoil pile (Section 528.300-321).

Excess Spoil

The application anticipates that 3.1% of the refuse (or 145,000 cu yds) will be undesirable refuse. The application erroneously describes this material as excess spoil. This is inaccurate. The undesirable refuse remains refuse. The reclamation plan should describe reclamation of refuse according to R645-301-553.250. All reference to excess spoil should be deleted from the plan. If the undesirable refuse is placed in the empty treatment ponds created by Cypress Plateau Mining Corporation (CPMC) for water treatment, those ponds will be classified as a refuse disposal site and require MSHA approval.

Findings:

The information provided is not adequate for the purposes of the Operations Refuse and Spoil and Waste requirements of the Regulations.

TECHNICAL MEMO

R645-100-200, All references to excess spoil should be removed from the application as undesirable refuse remains by definition, refuse. Since there is no overburden at the mine site, there cannot be any spoil at the mine site.

R645-301-553.250, The application should describe reclamation of the site according to the requirements for refuse piles.

R645-301-528.323, The applicant's plan for extinguishing coal mine waste fires should not depend on the use of salvaged, stockpiled substitute topsoil for smothering a fire, rather, a source for the imported soil should be stated in the plan.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

The plan indicates in Section 542.700 that the refuse is non acid/toxic forming. Supportive information for this statement is founding Section 624.330. This is an incorrect citation. Chemical characteristics of the refuse are found in Section 624.100 and 624.220-230 and Exhibit 542.700a, CPMC 1995 Response to DOGM Midterm Review. Recent research on refuse fuel quality is reported in Exhibit 624.210a, Reserve Assessment of Star Point Coal Refuse Site, prepared by Miltech Energy Services Inc., Ligonier Pennsylvania.

Table 624.100c presents samples taken at an uncertain date from the top four feet of the refuse pile. Locations are uncertain. Table 624.100c indicates that the refuse is acid forming based upon total sulfur values (average total sulfur acid/base potential of -9.6 Tons/1000 Tons and a range of -36 to positive 37 Tons/1000Ton). The Applicant correctly suggests in Section 624 (page 600-12) that only pyritic sulfur should be taken into account for the Acid/Base calculation. When only pyritic sulfur is used, the Division calculates t the Acid/Base Potential to range between -3.4 and -26.9 Tons/1000 Tons. Of the twenty samples analyzed for acid base accounting, only four are less than -5.0 Tons/1000 Tons. The average Acid/Base Potential of the refuse reported in Table 624.100c is -12.6 Tons/1000 Tons. Clearly the refuse is acid forming even when calculations are based solely on pyritic sulfur content.

TECHNICAL MEMO

Findings:

The information provided in the application is not considered adequate to meet the minimum Operation Plan Hydrologic Information requirement of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-121.200, Section 542.700 must state that acid/base accounting information is founding Section 624.100 and 624.220-230 and Exhibit 542.700a, CPMC 1995 Response to DOGM Midterm Review, as well as the recent Reserve Assessment of Star Point Coal Refuse Site, prepared by Miltech Energy Services Inc., Ligonier Pennsylvania, found in Exhibit 624.210a., not Section 624.330 as is currently stated in the application.

R645-301-131, -132, The information reported in Table 624.100c must be accompanied by the dates of collection, the names of persons or organizations that collected and analyzed the data and locations of samples shown on a map. If the requested information is not available, then SCA may analyze samples collected in 2001 to provide the required information on refuse chemical characteristics (i.e. Texture, pH, EC, SAR, B, Se, Acid/Base Accounting, etc.)

R645-301-731.300, Section 542.700 and Section 624.100 of the application incorrectly state that the refuse is non- acid/toxic forming. The refuse is acid forming, even when based upon pyritic sulfur values. Table 624.100c must provide a column showing Acid Potential and the Acid/Base Potential calculations based upon pyritic sulfur.

R645-301-728.320, The PHC must include a statement that refuse is acid forming.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

Two reclamation scenarios are proposed: one for complete elimination of the refuse pile is referred to as the Final Reclamation Scenario. The second called Bonding Scenario Reclamation describes reclamation of the site if only a portion of the refuse is utilized for fuel.

Findings:

The information provided is adequate for the General requirements of the Regulations.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

Post mining land use is described in Section 412.200 and Table 412.100a as wildlife, grazing and recreation. Management plans (required by R645-301-412.120) are synonymous with the reclamation plan for the site. The plan indicates that the timing and extent of grazing use will be made after bond-release by the land owner(s). A portion of the site falls within the BLM Wattis Grazing Allotment and will be managed by that agency. Apparently the allotment includes 3,500 acres of Public Land with an allocation of about 100 Animal Unit Months (AUM's) (Section 411.120).

The application indicates that the subsoil pile may not be completely removed from land owned by Plateau Mining Corporation. Authorization from Plateau Mining Corporation must be received to allow the subsoil pile to remain after reclamation of the site.

Findings:

The information provided is not adequate post mining land use requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-412.200, (1) Consent must be obtained from Plateau Mining Corporation to allow the subsoil to remain in its current location after reclamation of the site is completed. **(2)** Comments from the Bureau of Land Management concerning the implementation of the proposed post-mining land use are required as part of the application.

TECHNICAL MEMO

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

Approximate original contours of the area are known from a 1976 aerial photographs of the site (Section 553.100) and from exploration work conducted in 2001 (Exhibit 624.210a). The plan indicates that "to the maximum extent technically practical, the site will be backfilled and graded to achieve the assumed approximate original contour."

Two reclamation scenarios are proposed: one for complete elimination of the refuse pile is referred to as the Final Reclamation Scenario. The second called Bonding Scenario Reclamation describes reclamation of the site if only a portion of the refuse is utilized for fuel. Under the Bonding Scenario grading of the substitute topsoil pile will be as shown on Map 542.200c. This map must show pre-existing contours which are available from the aerial photography referred to in Section 553.110.

Road cuts will be eliminated using fill from the downslope of the road. They will be mulched, roughened and seeded according to the methods described in Section 542.200.

If all the refuse is utilized, the final reclamation topography will look like that shown on Map 542.200e. Slopes will be graded no steeper than 3h:1vertical. Under this scenario, unused refuse will be placed in the Excess Spoil Disposal Site. Waste material (54,000 cu yds) will be graded at the site, and 30,400 cubic yards of substitute topsoil will be redistributed over the regraded site. Under this Final Reclamation scenario, there is virtually no change in the topography of the subsoil storage pile.

To the extent known, Map 542.200e must reflect the original contours for the site.

The plan does not indicate the acreage of refuse piles A, B, and C and the proposed excess spoil disposal area. Using map 542.200a, the Division calculates that this acreage is approximately 75 acres. Coverage of 75 acres with 30,400 cubic yards of substitute topsoil material amounts to only three inch cover depth. This does not agree with plans stated in Section 200 of the application. Section 542.700 describes an eighteen inch or four foot cover depth depending upon slope in the Bonding Reclamation Scenario, but is less specific for the cover depth in the Final Reclamation Scenario.

Findings:

The information provided is not adequate to supply general information for the backfilling and grading requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-542.200, -553.260, -553.300, The application must indicate the exact acreage and yardage of substitute topsoil and cover depth to be placed in both the Final Reclamation Scenario and the Bonding Scenario Reclamation.

R645-301-553.110, The original contours for the site must be presented on reclamation maps to the extent that they are known.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

Reclamation of the refuse under the Bonding Scenario will require 235,000 loose cubic yards of substitute topsoil (Table 542.200b). Map 542.200c shows the existing and final contours of the topsoil storage area under the Bonding Scenario. Reclamation cross-sections for this scenario are shown in Map 542.200d.

Under the Final Reclamation Scenario, the Applicant will explore underneath the refuse pile for suitable substitute topsoil at reclamation (Section 224). Specific locations identified for evaluation as substitute topsoil are mentioned in Section 233. Under the Final Reclamation Scenario, 30,400 loose cubic yards will be excavated for use as substitute topsoil over what remains of the refuse pile (Table 542.200a). Map 542.200e illustrated the contours of the substitute topsoil pile for this scenario.

Both must illustrate the pre-existing contours for the substitute topsoil storage site. These contours are available from the aerial photography taken in 1976, described on page 500-30 of the application and from the exploration conducted in 2001 (Exhibit 624.210a).

Section 534 describes the construction of additional roads for access to the Topsoil Area to improve the operation of hauling topsoil. If needed, additional designs including sediment controls will be provided to the Division. Plans for road development must include topsoil or substitute topsoil salvage and replacement along the roadway.

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Section 242 of the application describes the ripping of the compacted surface to a depth of six to twenty four inches where possible to reduce surface compaction. Track-mounted equipment will be utilized for topsoil redistribution.

Section 553.100 states that dozers will be used to place topsoil on the slopes at a uniform thickness. All areas will be roughened. The plan further specifies, "The terraces and the flat top of the refuse pile will be deeply gouged with a track hoe." The Division recommends that the slopes are roughened as well. This roughening technique has been used on slopes of 2h:1v or less at many mine sites successfully. The plan indicates that gouging will extend below the final topsoil layer and that subsoils are of acceptable chemical and physical quality. The reader is referred to Section 222.400 to verify this statement. Section 222.400 of the application does not verify this statement.

Based on sampling of the soils, supplemental nitrogen will be applied at a rate of 40 pounds per acre and supplemental phosphorus will be applied at the rate of 30 pounds per acre active ingredient (Section 243). This fertilization program was based on the Division's 1985 "Guidelines for Supplying Soil Amendments."

Current recommendations are to apply fertilizers only when necessary due to an extreme nutrient deficiency, because nitrogen fertilization will encourage weed species at the expense of native species (see page 69 of The Practical Guide to Reclamation in Utah, a 2000 Division publication, available on line at www.dogm.nr.state.ut.us). Perhaps a healthy nitrogen balance could be achieved over time with the inclusion of native legumes in the seed mix, rather than with fertilization.

Fertilization with phosphorus should remain part of the plan. The application should further specify a slow release Treble super phosphate fertilizer that is incorporated into the topsoil layer with gouging.

The Star Point Mine was reclaimed in 2001 - 2002 and there was no fertilizer applied. The Des Bee Dove Mine was reclaimed using phosphorus fertilizer only. The phosphorus fertilization scheme might be refined based upon a comparison of the success of these two reclamation sites over the next ten years.

Findings:

The information provided in the application is not considered adequate to meet the minimum Topsoil Redistribution requirement of the regulations. Prior to approval, the permittee must provide the following in accordance with:

R645-301-240, Maps 542.200d and 542.200e of the application must include pre-existing contours for the substitute topsoil storage site. These contours are

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available from the aerial photography taken in 1976, described on page 500-30 of the application and from exploration conducted in 2001 (Exhibit 624.210a).

R645-301-243, The Permittee should specify the type and amount of phosphorus fertilizer and delete the addition of nitrogen fertilizer and provide for an increase in the native legume species in the seed mix instead.

R645-301-242.130, The application should indicate that the entire regraded site will be gouged, including the slopes (see Section 553.100)

R645-301-121.200, The plan indicates that gouging will extend below the final topsoil layer and that subsoils are of acceptable chemical and physical quality. The reader is referred to Section 222.400 to verify this statement. Although the subsoil stockpile is acceptable, Section 222.400 of the application does not verify this statement. Please correct the citation.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Table 624.200c presents information on the acid/toxic nature of the refuse. The Division calculates that waste is acid forming based upon pyritic sulfur values. Three of twenty nine samples have levels of plant available selenium in the surface three inches in exceedence of the recommended 0.1 ppm limit established in the Division's 1988 Guidelines for the Management of Topsoil and Overburden. Six of the twenty nine samples approach the limit for Boron.

The coal mine waste will be routinely sampled for characteristics of combustion, but not for acid/toxic forming properties. The plan should include some way of monitoring the refuse for acid/toxic properties just prior to final reclamation, so that acid forming waste and toxic waste (high in selenium and boron) can be buried within the fill.

Finding:

The information provided in the application is not considered adequate to meet the minimum Hydrologic Reclamation requirements of the regulations. Prior to approval, the applicant must provide the following in accordance with:

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R645-301-731.121, -731.311, -746.120, The application should include some way of monitoring the refuse for acid/toxic properties just prior to final reclamation, so that toxic waste or waste with the potential for acid-formation can be buried within the fill.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

Erosion control measures include surface roughening, mulching, and gouging (Section 242). Map 742.100 Alternate Sediment Controls illustrates the details of construction of surface roughening/benching, silt fencing, rock check dams, sediment traps water bars, berms, and straw bale check dams. As stated in Section 542.200, under the heading "Sedimentation Pond Removal and Interim Sediment Control," use of these structures during final reclamation will be utilized in the locations shown on Maps 731.720a and 731.720b, with field changes made as necessary; Map 542.200c shows proposed locations on the Topsoil stockpile. Installation of straw bales and silt fences will be according to the illustration in Figure 542.200a.

The application indicates in Section 542.200, under the heading "Sedimentation Pond Removal and Interim Sediment Control," that winter conditions may temporarily halt reclamation work. If so, regraded areas which have not been topsoiled will be deep gouged and left in a roughened state until the next opportunity to resume reclamation.

Findings:

The information provided in the application is not considered adequate to meet the minimum Stabilization of Surface areas requirement of the regulations. Prior to approval, the permittee must provide the following in accordance with:

R645-301-121.200, Information provided on Maps 731.720a and 731.720b are both referred to for locations of sediment control. The information provided is remarkably similar on each map, such that one map might suffice. The application should explain the usefulness of each map.

RECOMMENDATIONS:

The application should not be approved until the deficiencies noted in this memo are resolved.